CLAIMS

1. Method for preparing a gamma delta T lymphocytes composition, comprising at least one step of culturing a biological preparation comprising at least 50 million mononuclear cells in the presence of a synthetic activator compound of gamma delta T lymphocytes at initiation of the culture, followed by culture in the presence of a cytokine.

2. Method according to claim 1, wherein the biological preparation is a blood, plasma or serum sample.

3. Method according to claim 2, wherein the biological preparation is from a cytapheresis.

4. Method according to any one of claims 1 to 3, wherein the biological preparation comprises more than 10.10^7 cells.

5. Method according to any one of claims 1 to 4, wherein the biological preparation has previously been frozen.

6. Method according to any one of claims 1 to 5, wherein the cells are maintained during culture at a density less than about 5.10^6 cells/ml.

7. Method according to any one of claims 1 to 6, wherein the cells are cultured for a time period greater than or equal to about 10 days, preferably between 10 and 25 days.

8. Method according to any one of the previous claims, wherein the synthetic activator compound of gamma delta T lymphocytes is a ligand of the T cell receptor of gamma delta T lymphocytes.

9. Method according to claim 8, wherein the synthetic activator compound of gamma delta T lymphocytes is selected in the group consisting of phosphohalohydrin compounds, phosphoepoxide compounds and bisphosphonate compounds.

10. Method according to claim 9, wherein the synthetic activator compound of gamma delta T lymphocytes is selected in the group consisting of the following compounds:
3-(bromomethyl)-3-butanol-1-yl-diphosphate (BrHPP)
3-(iodomethyl)-3-butanol-1-yl-diphosphate (IHPP)
3-(chloromethyl)-3-butanol-1-yl-diphosphate (ClHPP)
3-(bromomethyl)-3-butanol-1-yl-triphosphate (BrHPPP)
3-(iodomethyl)-3-butanol-1-yl-triphosphate (IHPPP)
α,γ-di-[3-(bromomethyl)-3-butanol-1-yl]-triphosphate (diBrHTP)
α,γ-di-[3-(iodomethyl)-3-butanol-1-yl]-triphosphate (diIHTP)
3,4,-epoxy-3-methyl-1-butyl-diphosphate (Epox-PP)
3,4,-epoxy-3-methyl-1-butyl-triphosphate (Epox-PPP)
α,γ-di-3,4,-epoxy-3-methyl-1-butyl-triphosphate (di-Epox-TP)

11. Method according to any one of the previous claims, wherein the cytokine is selected in the group consisting of interleukin-2 and interleukin-15.

12. Method according to any one of the previous claims, wherein the cytokine is used at a concentration comprised between about 150 U/ml and about 500 U/ml.

13. Method according to any one of the previous claims, wherein the resulting composition has the following characteristics :

- it comprises more than 80 % gamma delta T cells, and
- it comprises more than 100 million viable and functional gamma delta T cells.

14. Method for preparing a cell composition comprising functional gamma delta T lymphocytes, wherein it comprises at least :
. culturing cells from a cytapheresis in the presence of a synthetic activator compound of gamma delta T lymphocytes and a cytokine selected in the group consisting of interleukin-2 and interleukin-15, said culture being carried out in conditions ensuring that cell density is maintained essentially below 5.10^6 cells/ml, and

. recovering some or all of the cells obtained, said cells comprising functional gamma delta T lymphocytes.

15. Method for preparing a pharmaceutical composition based on gamma delta T lymphocytes, the method comprising :
. culturing cells according to the method described in any one of claims 1 to 14,
. recovering some or all of the cells obtained, said cells comprising functional gamma delta T lymphocytes, and
. formulating the cells in a pharmaceutically acceptable carrier or excipient.

16. Pharmaceutical composition, wherein it comprises a population of cells composed of more than 80 % functional gamma delta T lymphocytes and comprising more than 100 million gamma delta T lymphocytes.

17. Composition according to claim 16, wherein it additionally comprises human serum albumin.

18. Composition according to any one of claims 16 or 17, wherein it additionally comprises a cytokine preferably selected in the group consisting of IL-2 and IL-15, in view of use simultaneously, separately or spread out over time.

19. Culture of blood cells *in vitro* or *ex vivo*, wherein it comprises at least 80 % functional gamma delta T lymphocytes and more than 100 million gamma delta T lymphocytes.

20. Use of a cell culture according to claim 19 for preparing a pharmaceutical composition for stimulating the immune defenses of a subject, particularly for treating infectious or parasitic diseases or cancers.